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ABSTRACT

This study investigated the television viewing habits of 341 intermediate grade children and examined the relationship between their viewing habits and their achievement scores based on standardized tests. Weekly viewing diaries were used to record information on television viewing. The study does not support either the premise that television assists children in school or that it is detrimental. Eleven data tables are provided. (STS)

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The Relationship of Children's Television Viewing to Achievement at the Intermediate Level

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The Relationship of Children's Television Viewing
to Achievement at the Intermediate Level

Television has been blamed successively for children's violent behavior, the deterioration of reading skills, the breakdown of effective parenting, and as a substitute for the formal classroom experience required for effective writing. Newsweek (December 8, 1975), however, pointed out that, "no one has yet produced a thorough study of the effects of TV on a generation of students raised in its glare..." (p.60).

Although the general belief expressed is one that television is bad for children, there are studies that support the thesis that television can be a positive influence. Himmeleweit (1958) and Schramm (1961) both indicated in their research studies that television contributes to vocabulary building. Feeley (1973) noted the observation that when television first comes to an area, reading time suffers. But the kind of reading that suffers is that most linked to the types of needs met by TV....visual forms such as comics and pulp magazines.

A study by Mason (1969) indicates that good readers learn words from television better than poor readers. Ruh found that school achievement, reading, arithmetic, and intelligence had a negative correlation with TV consumption (Schramm, 1961).

Wagner reported that brighter children (IQ over 115) typically begin to watch television at an earlier age, to look at magazines earlier and to read earlier. In their early years of school they

are likely to be high viewers of television (1975).

On the negative side, Witty (1966) and Scott (1956) found that excessive viewing is associated with lower achievement in reading.

A study by Childers and Ross (1973) examined the viewing habits of 100 elementary pupils in relation to IQ, GPA, and achievement. Their study found no significant relationship between the amount of hours a child spends watching television and his grades in school. IQ was not related to hours of televiewing.

A study by Starkey and Swinford (1974) which attempted to correlate amounts of TV viewing with reading achievement was unable to report any definitive results because no viewing diaries were kept and no achievement test scores were available to the researchers. Only reading group placement as reported by teachers was available.

LaBlonde (1966) investigated the viewing habits of 294 children in the fifth grade in St. Paul, Minnesota. She found no clear relationship between scholastic achievement and televiewing habits except in the area of work-study skills. The findings were based on programs selected by children over a period of time rather than researcher selected programs.

The studies reviewed here present mixed findings as to the effect of television viewing on children's achievement. Yet, educators, parents, and concerned citizens continue to question the impact excessive viewing has on children. Indeed, many authors and reporters do not hesitate to point out the negative effects which

television has on children's learning at school, without any or little research to support their position.

Purpose of the Study

The purpose of this study was to investigate the television viewing habits of intermediate grade children and to examine the relationships of television viewing habits with the children's achievement scores based on standardized tests.

The study sought to answer the following questions:

1. What are the television viewing habits of a selected group of fourth, fifth, and sixth grade children in terms of:
   a) hours spent viewing television during the school week,
   b) hours spent viewing television during the weekend, and
   c) how late children view television?
2. Are there significant correlations between the number of hours spent viewing television and achievement as measured by standardized test scores?

The Design of the Study

Subjects. The subjects were 341 children from an intermediate school in Marion, Illinois. There were 106 fourth graders, 121 fifth graders, and 114 sixth graders. The distribution of boys and girls is shown by grade level in Table 1. All children in all regular classrooms were available for this study. Children from two special education classrooms were not included.

Insert Table 1 about here

Collection of the data.

TV Diaries. The period of February 7 to March 5, 1976, was selected for collecting data on the children's television viewing habits. Using the TV Guide and the Sunday TV guide section of the local newspaper, TV diaries were prepared for each day of the week. Each day's diary included all seven channels which could be viewed in Marion, Illinois at any one time. (Marion is on cable television which increased the selections possible to the children.) The diaries were delivered to each teacher's mailbox on Monday morning. Each teacher distributed the diaries to his/her class.

Each morning the children were directed to mark an X on each program they had watched the day before. The diaries were marked each morning as soon as the children came to school. Each teacher returned his/her packet of diaries to the principal's office to be returned to the investigators.

One week prior to the beginning of the diary keeping, the investigators met with the teachers and principal to explain the study to them. The teachers were shown how the children were to mark the diaries and the directions to be given to the children. The teachers' questions were answered at that time.

Achievement test scores. Test scores from Fall, 1975 were used in this study. The fourth and fifth grade children were administered the Iowa Test of Basic Skills. The sixth grade children were administered the Stanford Achievement Test. The scores for all children were made available to the investigators.

Data Analysis. The TV viewing diaries were analyzed for each child. The total number of hours viewed was tallied for each day. An average for the weeknights, Monday through Thursday, and an average for the weekend, Friday through Saturday, was calculated for each week of the study. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data. The Children's achievement scores were correlated with hours of viewing.

The TV viewing diaries were also analyzed for determining the average time at which each child quit viewing. The data were analyzed to determine the percentage of children who quit viewing at 8:00, (the end of the Family Hour in Southern Illinois), 10:00, 11:00, 12:00, and 1:00 or later.

Results of the Study

Achievement

An analysis of the children's achievement scores was made for each grade level. Achievement scores were determined by grade level equivalents. Table 2 shows the mean, the minimum grade equivalent, the maximum grade equivalent, and the range of scores for the fourth grade for the Iowa Test of Basic Skills Tests of Vocabulary,

Reading, Total Language, Total Work-Study Skills, Total Math Skills, as well as for subtests of Spelling, Capitalization, Usage, Maps, Graphs, Reference, Concepts, Problem and a Composite score for the total test, are reported. The highest mean score for this class was in reading ($\bar{X}$=4.5); the lowest mean score was in problem solving ($\bar{X}$=4.1). Ranges on achievement variables vary from 4.0 on the composite score to 6.6 on the Spelling tests.

Insert Table 2 about here

Scores from the Iowa Test of Basic Skills were also analyzed for the fifth graders. As shown in Table 3, the highest mean score for fifth grade was also in Reading ($\bar{X}$=5.5). The lowest mean score was in Usage ($\bar{X}$=4.9). Ranges on achievement variables vary from 5.1 in Total Work-Study Skills to 7.5 on the Spelling Test.

Insert Table 3 about here

The Stanford Achievement Test Scores for sixth graders were analyzed by subtests. Table 4 gives the mean, minimum score, maximum score, and range by grade equivalents. The highest mean score for the sixth grade was in Math Application ($\bar{X}$=6.2); the lowest mean score was in Math Concepts ($\bar{X}$=5.2) and Reading ($\bar{X}$=5.2). Scores on achievement variables range from a low 9.0 in Reading and Math Concepts to a high 9.8 in Science.

Insert Table 4 about here

The $\bar{X}$ scores and range scores for fourth and fifth grades reveal that as a sample population, these children are a representative sample. The $\bar{X}$ scores and range scores for the sixth grade reveals that they are slightly below grade level.

Average viewing per day. The fourth grade children viewed an average of 4 hours per day. The minimum viewing time was 1.02 hours per day; the maximum viewing time was 9.79 with a range of 8.76. The standard deviation was 1.83. Girls shows a higher mean viewing time than boys (girls $\bar{X}$=4.08; boys $\bar{X}$=3.93) and a slightly wider range (girls R=8.73; boys R=8.42). Table 5 shows the mean, minimum (X_i), maximum (X_h), range, and standard deviation for all three grades.

Insert Table 5 about here

The fifth grade had the highest mean viewing time, $\bar{X}$=4.28, and the smallest range, R=7.43. The standard deviation was 1.82. Girls at fifth grade had a higher mean (girls $\bar{X}$=4.50; boys $\bar{X}$=4.11) but a smaller range (girls R=7.18; boys R=7.40).

The sixth graders mean score was slightly higher than the fourth grade, $\bar{X}$=4.03. The standard deviation was 1.98. Boys at sixth grade had a higher mean viewing time, $\bar{X}$=4.10 than girls, $\bar{X}$=3.97. Girls had a wider range (girls R=8.87; boys R=8.80).

A t-test of mean scores for the average hours viewed per day shows that there are no significant differences between boys and girls at any grade level or for the total group.

Average viewing by school nights and weekends.

Monday through Thursday nights were considered as school nights. Because of the total possible viewing hours on Sunday, Friday through Sunday was considered as the weekend.

School nights. The mean number of hours viewed for the period Monday through Thursday was examined for each grade level. Fourth grade children viewed an average of 14.255 hours over the four day period. This was the lowest mean for the three grades. Girls show a higher mean viewing time than boys (girls $\bar{X}$=14.643; boys $\bar{X}$=13.881).

Fifth grade children viewed a higher mean viewing time over the four day period than the children in grades four and six ($\bar{X}$=15.848). Fifth grade girls have a higher mean than fifth grade boys (girls $\bar{X}$=16.641; boys $\bar{X}$=15.233).

Sixth grade children had a mean of 15.018. Sixth grade girls had a higher viewing time than sixth grade boys (girls $\bar{X}$=15.504; boys $\bar{X}$=14.515). The mean viewing time for all children in the study was 15.071 for weekdays. Girls ($\bar{X}$=15.593) had a higher mean viewing time than boys ($\bar{X}$=14.594), as shown in Table 6.

Insert Table 6 about here

Weekends. All viewing on Friday, Saturday and Sunday was averaged for mean viewing times over the three-day period. Fourth grade children had a mean viewing time of 13.790. Fourth grade girls had a higher mean viewing time than fourth grade boys as shown in Table 7 - (girls $\bar{X}$=13.976; boys $\bar{X}$=13.610).

Fifth grade children had the highest mean viewing time of the three grades ($\bar{X}$=14.057). Fifth grade girls had the highest mean viewing time of all boys and girls in the study ($\bar{X}$=14.710). Fifth grade boys had a mean viewing time of 13.547.

Sixth grade children had the lowest mean viewing time ($\bar{X}$=13.292) although sixth grade boys had the highest mean viewing time for weekends ($\bar{X}$=14.259). Sixth grade girls had the lowest mean viewing time ($\bar{X}$=12.343).

The mean viewing time for all intermediate level children in the study was 13.719. Boys ($\bar{X}$=13.790) were slightly higher than girls ($\bar{X}$=13.641) as shown in Table 7.

Insert Table 7 about here

Average Viewing Per Day When School Nights and Weekends Are Considered Separately.

School nights. A second analysis revealed the average hours viewed for a single day when only Monday through Thursday viewing was considered. On these school nights, fourth grade children ($\bar{X}$=3.526) viewed less than fifth ($\bar{X}$=3.954) and sixth grade children ($\bar{X}$=3.717). All children viewed an average of 3.740 hours on school nights.

Fourth grade girls ($\bar{X}$=3.657) viewed less than fifth ($\bar{X}$=4.144) and sixth grade girls ($\bar{X}$=3.866). Fourth grade boys ($\bar{X}$=3.399) viewed less than fifth ($\bar{X}$=3.806) and sixth grade boys ($\bar{X}$=3.563). Girls ($\bar{X}$=3.888) had a higher mean viewing time than boys ($\bar{X}$=3.563). As shown in Table 8, fifth grade boys and girls had a higher mean viewing time than boys and girls in the fourth and sixth grades.

Insert Table 8 about here

Average Viewing Per Day When Weekend Days Are Considered Separately.

Viewing time mean scores increased for all grades and sexes as shown in Table 9. Fifth grade children ($\bar{X}$=4.683) had the highest mean viewing time; sixth grade children ($\bar{X}$=4.317) had the lowest mean viewing time. The mean viewing time for all children was 4.535.

Fourth grade girls ($\bar{X}$=4.675) had a slightly higher mean viewing time than fourth grade boys ($\bar{X}$=4.525). Fifth grade girls ($\bar{X}$=4.900) had the highest mean viewing time while fifth grade boys ($\bar{X}$=4.514) had the lowest mean viewing time of all boys. Sixth grade girls ($\bar{X}$=4.019) had the lowest mean viewing time of all groups while sixth grade boys ($\bar{X}$=4.620) had the highest mean viewing time for all boys.

Boys ($\bar{X}$=4.551) had a higher mean viewing time than girls ($\bar{X}$=4.518).

Insert Table 9 about here

Lateness of viewing.

The analysis of the hour at which the children in the sample terminated their television viewing on school nights shows that none of the children stopped at 8:00 p.m. By 10:00 p.m. 73 percent of the fourth graders had stopped viewing. Fifty-six percent of

the fifth graders and 55 percent of the sixth graders had stopped by 10:00 p.m. Sixty-one percent of the sample of 332 children had terminated viewing by 10:00 p.m. as shown in Table 10. A total of 6 percent of the entire sample was still viewing until midnight.

Insert Table 10 about here

Table 11 shows a shift in viewing habits on the weekend at all levels. Fifty-nine percent of the fourth graders, 44 percent of the fifth graders and 43 percent of the sixth graders stopped viewing at 10:00 p.m. Eleven percent were still viewing until 12:00 midnight.

Insert Table 11 about here

Correlations between achievement and TV viewing.

At the fourth grade level, only one Pearson Moment Correlation of - 0.19 on Capitalization was significant at the .029 level, as shown in Table 12. When boys and girls are considered separately there are no significant correlations for boys.

There were significant negative correlations for fourth grade girls on Capitalization, - 0.37 ($p < 0.005$), Total Language, - 0.24 ($p < 0.05$), Maps, - 0.28 ($p < 0.02$), Concepts, -0.29 ($p < 0.02$), Problems, - 0.23 ($p < 0.05$), Total Math, - 0.30 ($p < 0.02$), and Composite, - 0.23 ($p < 0.057$).

There were no significant correlations at the fifth grade level.

At the sixth grade there were no significant scores for the total populations. There were significant correlations for boys on Social Science, 0.23 ($p < 0.05$) and Total Math, 0.25 ($p < 0.03$). There was a negative correlation for girls on Listening Comprehension, - 0.26 ($p < 0.03$).

Conclusions and Discussions

The distribution of the children's test scores and the average hours spent in viewing indicates that this was a representative sample of children. The findings support earlier data regarding average hours children spend per day viewing television.

The Family Hour has little relationship to when the children terminate viewing in the evening. The Family Hour ends at 8:00 p.m. in the C.S.T. zone. The children in this study viewed consistently beyond 8:00 p.m.

Parents and/or children evidently were exercising some control over when children terminate viewing on week nights by age. The larger percentage of fourth graders terminating viewing by 10:00 p.m. gives evidence of this. Also, the difference in termination of viewing times on the weekend gives evidence of a differentiation on the part of parents or children. Children seem to have more freedom to view later on the weekends.

Finally, it is difficult to say from this study that television viewing is harmful to children in terms of achievement

in school. With the exception of the fourth grade girls, fewer negative correlations were found than positive correlations. Likewise, the study does not support the premise that television helps children in school.

Because of the negative findings related to the fourth grade girls, it is recommended that a second study be undertaken in the same school to determine if the negative correlations appear in a new sample of fourth grade girls and/or if the negative correlations appear in the girls when they are fifth graders.

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Table 1 Grade Level and Sex of Children in the Study

Sex	Grade 4	Grade 5	Grade 6	Total
Boys	54	68	56	178
Girls	52	53	58	163
Total	106	121	114	341

Table 2 Achievement Variables of Children At

Fourth Grade Level Based on Iowa Test of Basic Skills

Variables	Grade Level Equivalents			
	Mean	Minimum	Maximum	Range
Vocabulary	4.4	1.8	6.4	4.6
Reading	4.5	1.5	6.6	5.1
Spelling	4.5	.7	7.3	6.6
Capitalization	4.2	1.2	6.9	5.7
Usage	4.2	1.2	6.8	5.6
Total Language	4.2	1.6	6.6	5.0
Maps	4.3	1.3	7.1	5.8
Graphs	4.2	2.0	7.1	5.1
Reference	4.3	1.7	6.4	4.7
Total Study Skills	4.3	1.9	6.5	4.6
Concepts	4.4	2.4	6.8	4.4
Problem	4.1	1.7	7.1	5.4
Total Math Skills	4.2	2.2	6.8	4.6
Composite Scores	4.3	2.2	6.2	4.0

Table 3 Achievement Variables of Children At

Fifth Grade Level Based on Iowa Test of Basic Skills

Variables	Grade Level Equivalents			
	Mean	Minimum	Maximum	Range
Vocabulary	5.2	1.1	8.5	7.4
Reading	5.5	2.3	8.7	6.4
Spelling	5.2	1.5	9.0	7.5
Capitalization	5.3	1.7	8.7	7.0
Usage	4.9	1.1	8.2	7.1
Total Language	5.2	2.5	8.1	5.6
Maps	5.3	2.4	8.2	5.8
Graphs	5.0	1.8	8.2	6.4
Reference	5.2	2.2	8.3	6.1
Total Work-Study Skills	5.2	3.1	8.2	5.1
Concepts	5.4	2.5	8.3	5.8
Problems	5.1	2.0	8.2	6.2
Total Math Skills	5.2	2.4	8.0	5.6
Composite Scores	5.3	3.0	8.2	5.2

Table 4 Achievement Variables of Children at Sixth Grade Level Based on Stanford Achievement Test

Variables	Grade Level Equivalents			
	Mean	Minimum	Maximum	Range
Reading	6.1	.5	9.5	9.0
Work Study Skills	5.5	2.0	9.5	9.3
Math Concepts	5.2	.5	9.5	9.0
Math Comprehension	6.1	.1	9.6	9.5
Math Application	6.2	.5	9.9	9.4
Language	5.9	.1	9.6	9.5
Social Science	5.3	.5	9.9	9.4
Science	5.6	.1	9.9	9.8
Listening Comprehension	5.6	.5	9.9	9.4
Total Reading	5.2	.5	9.6	9.1
Total Math	5.6	.1	9.8	9.7
Total Auditory	6.0	.4	9.9	9.5
Composite Score	6.0	.1	9.6	9.5

Table 5

Average Daily Viewing Habits of Children by Grade and Sex

Grade	BOYS					GIRLS					TOTAL				
	$\bar{X}$	X_l	X_h	R	STD DEV	$\bar{X}$	X_l	X_h	R	STD DEV	$\bar{X}$	X_l	X_h	R	STD DEV
Fourth	3.93	1.02	9.44	8.42	1.81	4.08	1.05	9.79	8.73	1.86	4.00	1.02	9.79	8.76	1.83
Fifth	4.11	0.63	8.03	7.40	1.89	4.50	0.88	8.05	7.18	1.73	4.28	0.63	8.05	7.43	1.82
Sixth	4.00	0.91	9.71	8.80	1.95	3.97	0.44	9.31	8.87	2.01	4.03	0.44	9.71	9.27	1.98

Table 6

Mean Number of Hours Viewed on Week Days By Grades and Sex

Sex	Fourth Grade	Fifth Grade	Sixth Grade	Total
Boys	13.881	15.233	14.515	14.594
Girls	14.643	16.641	15.504	15.593
Total	14.255	15.848	15.018	15.071

Table 7

Mean Number of Hours Viewed on Weekends by Grades and Sex

Sex	Fourth Grade	Fifth Grade	Sixth Grade	Total
Boys	13.610	13.547	14.259	13.790
Girls	13.976	14.710	12.343	13.641
Total	13.790	14.057	13.292	13.719

Table 8

Average Hours of Viewing on School Nights by Grade and Sex

Sex	Fourth Grade	Fifth Grade	Sixth Grade	Total
Boys	3.399	3.806	3.563	3.605
Girls	3.657	4.144	3.866	3.888
Total	3.526	3.954	3.717	3.740

Table 9

Average Hours of Viewing on Weekends by Grade and Sex

Sex	Fourth Grade	Fifth Grade	Sixth Grade	Total
Boys	4.525	4.514	4.620	4.551
Girls	4.675	4.900	4.019	4.518
Total	4.599	4.683	4.317	4.535

Table 10

Analysis of the Time at Which Children Terminate Viewing on School Nights

Grade Level	8:00	10:00	11:00	12:00	1:00
Fourth Grade N = 99	0	72/73%	24/24%	2/2%	1/1%
Fifth Grade N = 119	0	67/56%	44/37%	7/6%	1/1%
Sixth Grade N = 114	0	63/55%	41/36%	8/7%	2/2%
Total 332	0	202/61%	109/33%	17/5%	4/1%

Table 11

Analysis of the Time at Which Children Terminate Viewing on Weekend Nights

Grade Level	8:00	10:00	11:00	12:00	1:00
Fourth Grade N = 99	2/2%	56/57%	36/36%	5/5%	0/0%
Fifth Grade N = 120	5/4%	48/40%	52/43%	14/12%	1/1%
Sixth Grade N = 114	--	49/43%	47/41%	14/12%	4/4%
Total 333	7/2%	153/46%	135/41%	33/10%	5/1%